



Nazareth Area School District

Grade 8 Science:

Instruction in Grade 8 Science focuses on four units of study: Microscopes, Diversity of Living Things, Cells and Heredity, and Ecology and the Environment.

By the end of 8th grade students will be able to:



1. Properly use a microscope

- Identify the parts of the microscope.
- Demonstrate the proper use of a microscope to view specimens.

2. Show that all organisms are made up of one or more cells and that characteristics from parents are passed to offspring in predictable ways.

- Explain the components of the scientific theory of cells.
- Compare the structure and function of cell parts in plant and animal cells.
- Describe the different levels of organization in living things.
- Explain how cells capture and release energy.
- Relate the process of mitosis to its functions in single-celled and multicellular organisms.
- Analyze the inheritances of traits in individuals.
- Explain how patterns of heredity can be predicted by Punnett squares and pedigrees.
- Describe the structure and main functions of DNA.



3. Distinguish between the types of organisms by their structures, the way they grow and reproduce and the ways they interact with their environment.

- Describe the necessities of life and the characteristics that all living things share.
- Describe the role of genetic and environmental factors in the theory of evolution by natural selection.
- Describe the evidence that supports the theory of evolution by natural selection.
- List the characteristics that all plants share and explain how plants are classified into major plant divisions.
- Describe the processes through which plants obtain energy, reproduce, and respond to their environments.



4. Develop an understanding how organisms interact with each other and their environment and the human effect.

- Analyze the parts of an environment.
- Relate the roles of organisms to the transfer of energy in food chains and food webs.
- Explain how population size changes in response to environmental factors.
- Predict the effects of different interactions in communities.
- Explain the flow of energy and the cycles of matter in ecosystems.
- Describe how natural processes change ecosystems and help them develop after a natural disturbance.
- Summarize the value of conserving Earth's resources and the effect that wise stewardship has on land, water and air resources.

